REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

Claim 4 has been amended. Claims 12 and 13 have been added. Favorable consideration of the claims is hereby requested.

The Examiner has rejected claims 1, 4, 7, and 10 under 35 U.S.C. 103(a) as being anticipated by U.S. Pat. No. 6,473,664 to Lee et al. in view of U.S. Pat. No. 5,351,247 to Dow et al. The Examiner's rejection is traversed for the following reasons.

One aspect of the present invention relates to an apparatus for managing a liquid crystal substrate. The apparatus includes a liquid crystal testing device operable to determine whether at least one of a panel and a substrate in the liquid crystal substrate has a defect, and acquire defect information indicative of at least the defect and whether the at least one of the panel and the substrate is defective. The apparatus further includes a liquid crystal repair device operable to repair the defect based on the defect information, and acquire repair information. The repair information is indicative of whether the defect is actually repaired. The apparatus also includes a data management section having a database adapted to record the defect information which is acquired from the liquid crystal testing device, and the repair information which is acquired from the liquid crystal repair device. The data management section is operable to redetermine the presence of the defect based

on comparison between the defect information and the repair information which are recorded in the database. The liquid crystal repair device is operable to correct the defect information to generate corrected defect information when the defect information is different from the repair information with regard to the defect. Furthermore, the data management section is operable to update the defect information recorded in the database with the corrected defect information.

Lee involves a manufacturing process automation system for the fabrication of semiconductor devices and TFT-LCDs. Specifically, Lee discloses machines (300a, 300b, 300c, 300d) that communicate with a file server (400). Additionally, a database (110) interacts with machine servers (200a, 200b, 200c, 200d) that communicate with the machines (300a, 300b, 300c, 300d). The machines (300a, 300b, 300c, 300d) may include a tester, a repairer, an exposing machine, an etching machine, and a sputtering machine.

Dow relates to an adaptive fault identification system. In particular, Dow includes a test station (10) and a control computer (16). The control computer (16) is connected to a test bed (14) with a test bed control (20) and tests a unit-under-test (UUT) (12). The UUT (12) is connected to a data collection device (21) that is attached to the control computer (16) through a first interface (22). The "data collection device 21 captures two types of data, internal machine states and a representation of a currently executing built-in self test" (Col. 3, lines 51-53).

Contrary to the Examiner's allegation, the claimed data management section should be corresponded to only the file server (400) because the above test result data and the above repair result data are not stored in the host (100, 1000), but only the file server (400, 900). What can be stored in the host are the information items

(Col. 9, lines 2-6) corresponding to the claimed recipe information (Claims 2 and 5) and the summary data (Col. 5, lines 24-28, 52-55) corresponding to the claimed trend information (Claims 8 and 11).

Claim 1 recites that the "data management section is operable to redetermine the presence of the defect based on comparison between the defect information and the repair information which are recorded in said database." Additionally, claim 4 recites the step of "redetermining the presence of the defect based on comparison between the defect information and the repair information which are recorded in the database." Review of Lee does not reveal the teaching of this feature or step. The file server (400, 900) of Lee merely stores the test result data and the repair result data (and may store the summary data), but has no function to redetermine the presence of the defect.

Claim 1 further recites that the "liquid crystal repair device is operable to correct the defect information to generate corrected defect information when the defect information is different from the repair information with regard to the defect." Additionally, claim 4 recites the step of "correcting the defect information to generate corrected defect information when the defect indicated by the defect information is different from the defect indicated by the repair information with regard to the defect." Lee also fails to teach or suggest this feature or step. The repairer (300b) of Lee merely executes repair with reference to the test result data. The descriptions of Lee to which the Examiner refers mentions neither that the repairer (300b) judges the difference between the test result data and the repair result data, nor that the repairer (300b) corrects the defect data to generate the corrected defect information.

Claim 1 also recites that the "data management section is operable to update the defect information recorded in said database with the corrected defect information" and claim 4 recites the step of "updating the defect information recorded in said database with the corrected defect information." Lee does not teach or suggest this feature or step. As mentioned hereinabove, it is impossible to define the corrected defect information from the disclosure of Lee. In addition, the term "update" is used only in the description related to the host. For example, the Examiner points to Col. 8, lines 54-56 of Lee. In this section, the machine status and the port information which are updated are completely different from the claimed defect information. Accordingly, the host of Lee is not configured to store the test result data and the repair result data as required by the present invention.

Furthermore, it is noted that Dow cannot compensate for each of the above deficiencies of Lee. In addition, contrary to the Examiner's allegation, Dow fails to show redetermining the presence of the defect based on the comparison between the defect information and the repair information. Rather, Dow executes the redetermining by simply retesting (i.e., executing the same test again) the subject and judging whether the defect is correctly repaired based on the fact that the subject passes the retest. There is no process corresponding to the claimed comparison. Namely, in Dow, it is impossible to know whether the defect is correctly repaired before the retest. In this context, Dow fails to show the recitation that the repair device is operable to correct the defect information to generate corrected defect information when the defect indicated by the defect information is different from the defect indicated by the repair information, because this correction cannot be executed if the repair device does not know the defect is correctly repaired.

For at least the above reasons, removal of the rejections of claims 1 and 4, from which claims 7 and 10 depend, is respectfully requested.

The Examiner has rejected claims 2, 3, and 5 under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Dow and U.S. Pat. No. 6,282,457 to Miura. Furthermore, the Examiner has rejected claims 8 and 11 under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Dow and U.S. Pat. Pub. 2003/0063792 to Hiroi et al. The Examiner's rejection is traversed for the following reasons.

Miura relates to a device for controlling a treating station. Miura teaches a coating/development unit (2) that is connected to a host computer (5) and an exposure unit (3). A transfer unit (4) transfers a wafer (W) between the coating/developing unit (2) and the exposure unit (3), and a control section (20) is incorporated in the coating/developing unit (2). The "host computer does not output recipe information for the control of the transfer system, which means that the transfer system operates independent of the host computer" (Col. 6, lines 32-35).

Hiroi involves an apparatus for inspecting a specimen. Specifically, Hiroi includes a beam source (1) for generating an electron beam (2). The apparatus further includes a deflector (3), an object lens (4), a stage (6), a detector (8), and an A/D converter (9), as shown in Fig. 4. A defect data storing means (201) stores defect data (200) and a data outputting means (203) outputs stored defect data (202).

It is noted that Miura and Hiroi do not correct the deficiencies of Lee and Dow. More specifically, Miura and Hiroi do not teach or suggest that the "data management section is operable to redetermine the presence of the defect based on comparison between the defect information and the repair information which are

recorded in said database" or the step of "redetermining the presence of the defect based on comparison between the defect information and the repair information which are recorded in the database" as recited in claims 1 and 4, respectively. Nor do Miura and Hiroi teach or suggest that the "liquid crystal repair device is operable to correct the defect information to generate corrected defect information when the defect information is different from the repair information with regard to the defect" or the step of "correcting the defect information to generate corrected defect information when the defect indicated by the defect information is different from the defect indicated by the repair information with regard to the defect" as recited in claims 1 and 4, respectively. Additionally, Miura and Hiroi fail to teach or suggest that the "data management section is operable to update the defect information recorded in said database with the corrected defect information" or the step of "updating the defect information recorded in said database with the corrected defect information" as recited in claims 1 and 4, respectively. Therefore, even if the references were combined, they would not provide these required features and steps. Thus, the Examiner has failed to provide a *prima facie* case of obviousness of claims 1 and 4, from which claims 2, 3, 5, 8 and 11 depend. Therefore, the rejection of claims 2, 3, 5, 8 and 11 must be withdrawn.

New claims 12-13 have been added. It is offered that new claims 12-13 contain independently patentable subject matter. Favorable consideration of claims 12-13 is hereby requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is

invited to initiate a telephone interview with the undersigned attorney to expedite

prosecution of the present application.

If there are any additional fees resulting from this communication, please

charge same to our Deposit Account No. 18-0160, our Order No. NGB-15369.

Respectfully submitted,

RANKIN, HILL & CLARK LLP

By   /David E. Spaw/
          David E. Spaw, Reg. No. 34732

38210 Glenn Avenue
Willoughby, Ohio 44094-7808
(216) 566-9700